

AMSH1	THNEFTTTHVIVP--KQSAGPDYCDMENVEELFNVDQDHD--LITLGNHITPTQTAFLS
AMSH2	THNEFTTTHVIVP--KQSAGPDYCDMENVEELFNVDQDHD--LITLGNHITPTQTAFLS
AMSH	MNEFTTTHVLIP--KQSAGSDYCNTENEELFLIQDQGG--LITLGNHITPTQTAFLS
Rpn11	TVRVVDVTAMPQS--GTGVSVEAVDPVQAKMLDMLKQTGRFEMVVGWYBSFGFCNLS
Jab1	TMIIMDSALPVEGTETRVNBQAAA YEYMAAYLENAXQVGRLENATGNYBSFGYGCNLS
	.....
AMSH1	SVPLHTHC SYQIMLPEALAI VCSFKHKDTG-----IFRLTNAGMLEVSACKKKGPH--PH
AMSH2	SVPLHTHC SYQIMLPEALAI VCSFKHKDTG-----IFRLTNAGMLEVSACKKKGPH--PH
AMSH	SVPLHTHC SYQIMLPEALAI VCSFKHKDTG-----IFRLTNAGMLEVSACKKKGPH--PH
Rpn11	GVPLINTQSSFLALSERAVAVVVDPIQSVRGKVVIDAFRLINANMVLGHEPROTTSNLGH
Jab1	GIEVSTQMLNQQFQEPFVAVVIDPFRITISAG----KVNIGAFRTYPRGYKPRDEGPSEYQ
	.....
AMSH1	TKEPRLFSICKHV--LVKDIKI-----IVLDLR-----
AMSH2	TKEPRLFSICKHV--LVKDIKI-----IVLDLR-----
AMSH	SKDPPLFCSCSHVT--VVDRAV-----TITDLR-----
Rpn11	LNKPSIQALIHGLNRHYYSITINYRKNELEQKMLLNLEKRSMEGLTIQDYSEBCKHNE
Jab1	TIPLNKIEDFGVHCKQYXALEVSYFKSSIDRKLELLRNKYVWNTLSSSSLTNADYTG
	.....
AMSH1	-----
AMSH2	L-----
AMSH	-----
Rpn11	VVKMIAIAKAYKAVKEDKMTPEQLAKNVGEQDPKRHLETHVDVIMTSMIVQCLAM
Jab1	QVFDLSEKLEQSEALGRGSFNLG--LETHDRKSEDKLAKATRDSCKTTLEATHGLMSQV
	.....
AMSH1	-----
AMSH2	-----
AMSH	-----
Rpn11	LOTVVFK-----
Jab1	IKDKLEFQINIS

FIGURE 1



COP9_su5_Hs	VGRLENAIGWYHSHPGYGCWLSGIDVSTQMLNQOFQEPFVA--VVIDPTRTISAGKVNLG
COP9_su5_Dm	VGRMEHAVGWYHSHPGYGCWLSGINVSTQMLNQTYQEPFVA--IVVDPVRTVSAGKVCLG
COP9_su5_At	AGRLENVVGWYHSHPGYGCWLSGIDVSTQRLNQOHQEPFLA--VVIDPTRTVSAGKVEIG
COP9_su5_Ce	EGRKEKVVGWYHSHPGYGCWLSGIDVSTQTLNQKFQEPWVA--IVIDPLRTMSAGKVDIG
AF2198_Arcfu	LPIGMKVFGTVHSHPSPCRPSEEDLSLFTRFGKYHIIVCY--PYDENSWKCYNRKGEEV
PH0451_Pyrho	MPHDESIKGTFFHSHSPFPYPSEGDLMFFSKFGGIHIIAAF--PYDEDSVKAFDSEGREV
TVN1035_Thevo	KPIDFSLVGSVHSHPSGITKPSDEDLRMFSLTGKIHIIVGY--PYNLKDYSAYDRSGNKV
MTH971_Metth	LPPFTGAVGSVHSHPGFVNLPAAADLHFFSKNGLFHLLIAH--PYTMETVAAYTRNGDPV
aq_1691_Aquae	ISKGMEIVGVYHSHPDHPDRPSQFDLQRAFPDLSYIIFSVQ--KGKVASYRSWELKGDKF
RV1334_Myctu	EDADEVPVVIYHSHTATEAYPSRTDVKLATEPDAHYVLVSTRDPHRHELRSYRIVDGAVT
RadC_Ecoli	IKINASALILAHNHPSGCAEPSKADKLITERIIKSCQFMDL--RVLDHIVIGRGEYVSFA
.....	.....HSHP.....S'D

FIGURE 3

COP9_su5_Hs	VGRLENAIGWYHSHPGYGCWLSGIDVSTOMLNQQFQEPFVA--VVIDPTRTISAGKVNLG
COP9_su5_Dm	VGRMEHAVGWYHSHPGYGCWLSGINVSTOMLNQTYQEPFVA--IVVDPVRTVSAGKVCLG
COP9_su5_At	AGRLENVVGWYHSHPGYGCWLSGIDVSTQRLNQQHQEPFLA--VVIDPTRTVSAGKVBIG
COP9_su5_Ce	EGRKEKVVGWYHSHPGYGCWLSGIDVSTQTLNOKFQEPWVA--IVIDPLRTMSAGKVDIG
Pad1_Dm	TGRPEMVVGWYHSHPGFGCWLSGVDINTQQSFEALSERAVA--VVVDPIQSVKG-KVVID
Pad1_Hs	TGRPEMVVGWYHSHPGFGCWLSGVDINTQQSFEALSERAVA--VVVDPIQSVKG-KVVID
Sksl_Dd	TGRDEIVIGWYHSHPGFGCWLSVDVNTQQSFEQLQSRAVA--VVVDPLQSVRG-KVVID
Pad1_Sc	TGRDOMVVGWYHSHPGFGCWLSVDVNTQKSFEQLNSRAVA--VVVDPIQSVKG-KVVID
.....	HSHP''''''S 'D

FIGURE 4